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(21) Application number: **05225998**(22) Date of filing: **10.09.93**(71) Applicant: **MITSUI TOATSU CHEM INC**(72) Inventor: **YAMAMOTO KYOJI**
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(54) **DIPHOSPHINITE COMPOUND AND**
HYDROFORMYLATION OF OLEFIN USING THE
SAME

reaction of a chlorophosphine.

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(57) Abstract:

PURPOSE: To provide the subject new compound manifesting both highly excellent reactivity and reaction characteristics as a ligand, giving high branch/linear form ratio, and capable of producing an intermediate for medicines by hydroformylation using the same.

CONSTITUTION: The objective compound having bicyclo[2,2,1]heptane skeleton of the formula (R^1 - R^4 are each 1-8C alkyl, 6-18C aryl or 7-18C aralkyl, R^1 and R^2 and/or R^3 and R^4 are each alkyl, aryl or aralkyl which may also be linked to each other via a bond except for P atom), e.g. endo, endo-2,5-bis[(diphenylphosphinyl)oxy]bicyclo[2,2,1]heptane. It is recommended that the compound of the formula be obtained, for example, by a process wherein norbornadiene is reacted with formic acid to produce norbornadiene diformate which is then oxidized with chromic acid and then reduced by hydrogenated tri(t-butoxy)aluminumlithium followed by

